CV-57G

HDMI 1.3 over Single CAT5 Extender

User Manual

Full HD 1080 | HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE | HDCP HIGH-DEFINITION CONTENT PROTECTION | 7.1 CH AUDIO | CAT-5e/6/7 SINGLE PATENTED | RoHS Compliance | FC | CE

Made in Taiwan

Safety and Notice

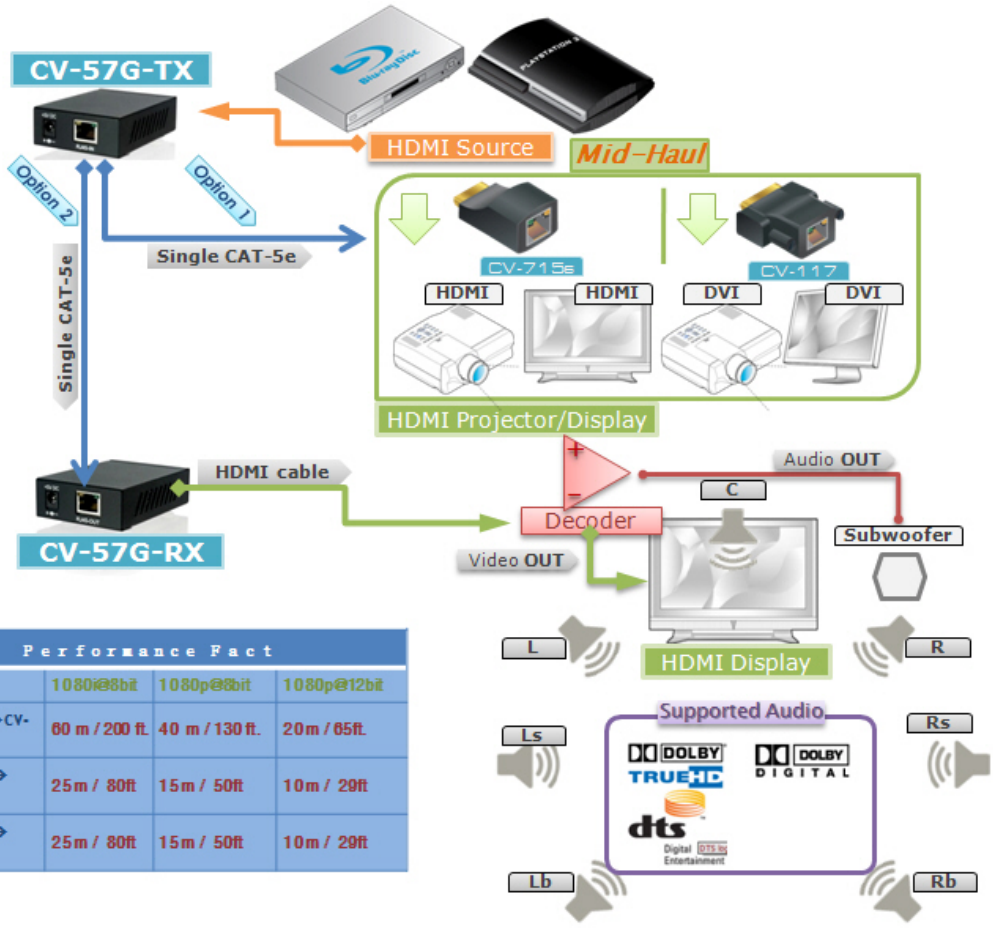
The **CV-57G HDMI 1.3 over Single CAT5 Extender** has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the CV-57G should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

Introduction

The **CV-57G HDMI 1.3 over Single CAT5 Extender** boosts up your video/audio transmission distance up to 60m (200ft) in HDTV 1080i format, 40m (130ft) in HDTV 1080p format, and 20m (65ft) in HDTV 1080p with 36 bit color depth. With only one cost effective LAN cable, users can readily extend HDTV sources from DVD players, Blu-ray Disc player, PS3, PC, and any other kinds of sources compliant with TMDS to distant display monitors including HDMI/DVI enabled TV sets or LCD PC monitors. With the state-of-the-art Silicon Image chipsets equipped, deep color video, DTS-HD or Dolby TrueHD audio, and HDCP supports and compatibility are all further insured. This flexibility makes HDCP compliant DVD players or PS3 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart.

The CV-57G includes two units: transmitting (CV-57G[Tx]) and receiving (CV-57G[Rx]) units. The transmitting unit is used to capture the input HDMI/DVI signals and carry the signals through one RJ-45 connector into one cost effective Cat-5/5e/6 cable. The receiving unit is responsible for equalizing the transmitted HDMI signal. The transmission distance between the sending and receiving units can be up to 60m (200ft) under HD (720p/1080i) or 40m (130ft) under Full HD (1080p). With an 8-level equalization rotary control on the receiving unit, users can adjust the equalization strength to the received HDMI signals accordingly, and therefore optimize the transmission distance between source and destination.



Performance Fact	1080i@8bit	1080p@8bit	1080p@12bit
CV-57G-TX→CV-57G-RX	60 m / 200 ft.	40 m / 130 ft.	20m / 65ft.
CV-57G-TX → CV-715s	25m / 80ft	15m / 50ft	10m / 29ft
CV-57G-RX → CV-117	25m / 80ft	15m / 50ft	10m / 29ft

Features

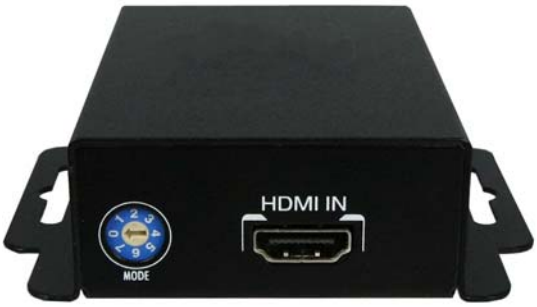
- State-of-the-art Silicon Image (founder of HDMI) chipset embedded for upmost compatibility and reliability
- HDMI 1.3c compliant
- Extend the transmission length up to 60m (200ft) from the HDMI sources under HD resolution (1080i or 720p at 24-bit color depth)
- Extend the transmission length up to 40m (130ft) from the HDMI sources under Full HD resolution (1080p at 24-bit color depth)
- Extend the transmission length up to 20m (65ft) from the HDMI sources under Full HD resolution (1080p at 36-bit color depth)
- HDCP 1.1 compliant
- Minimize the cable skew by adjustable 8-level equalization control
- Pure unaltered uncompressed 7.1ch digital HDMI over LAN cable transmission
- DTS-HD and Dolby True HD high bit rate audio support
- Allows cascading
- Wall mounting housing design for easy and robust installation
- Perfectly integrated with other HDMI over CAT5 series products

The length depends on the characteristics and quality of the cables. Higher resolutions and longe transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT with metal RJ-45 connectors is recommended.

Specifications & Package Contents

Model Name		CV-57G		CV-57C		CV-57B	
Technical		CV-57G[Tx]	CV-57G[Rx]	CV-57C[Tx]	CV-57C[Rx]	CV-57B[Tx]	CV-57B[Rx] aka CV-715
Role of usage		Transmitter [TX]	Receiver [RX]	Transmitter [TX]	Receiver [RX]	Transmitter [TX]	Receiver [RX]
HDMI compliance		HDMI 1.3c				HDMI 1.2a	
HDCP compliance		Yes					
Video bandwidth		Single-link 225MHz [6.75Gbps]				Single-link 165MHz [4.95Gbps]	
Video support		480i / 480p / 720p / 1080i / 1080p60					
HDMI over UTP transmission [24-bit]		Full HD (1080p)-40m (130ft) [CAT5e] / 50m (165ft) [CAT6] HD (720p/1080i)-50m (165ft) [CAT5e] / 60m (200ft) [CAT6]					
Audio support		Surround sound (up to 7.1ch) or stereo digital audio					
Signal Equalization		8-level digital control at RX					
Input TMDS signal		1.2 Volts [peak-to-peak]					
Input DDC signal		5 Volts [peak-to-peak, TTL]					
ESD protection		[1] Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±8kV					
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]					
Input		1x HDMI	1x RJ-45	1x HDMI	2x RJ-45 1x 3.5mm	1x HDMI	1x RJ-45
Output		1x RJ-45	1x HDMI	2x RJ-45 1x 3.5mm	1x HDMI	1x RJ-45	1x HDMI
HDMI source control		No		Controllable via IR pass-through from RX to TX with IR extenders		No	
IR remote control		N/A		Electro-optical characteristics: τ = 25° Carrier frequency: 36-40kHz		N/A	
HDMI connector		Type A [19-pin female]					
RJ-45 connector		WE/SS 8P8C with 2 LED indicators					
3.5mm connector		None	None	IR blaster	IR receiver	None	None
Rotary control switch		Mode	Signal level	None	Signal level	Mode	Signal level
Mechanical		**CV-57G**		**CV-57C**		**CV-57B**	
Housing		Metal enclosure					
Dimensions [L x W x H]	Model	93x60x25mm [3.7"x2.4"x1"]		85 x 60 x 25mm [3.3"x2.4"x1"]			
	Package	270 x 175 x 80mm [10.6" x 6.9" x 3.1"]					
	Carton	450 x 370 x 300mm [1'6" x 1'3" x 1']					
Weight	Model	405g [14oz]		320g [11oz]		315g [11oz]	
	Package	815g [1.8 lbs]		720g [1.6 lbs]		715g [1.6 lbs]	
Fixedness		Wall-mounting case with screws					
Power supply		5V 2A DC		5V 4A DC		5V 2A DC	
Power consumption		1 Watt [max]					
Operation temperature		0~40°C [32~104°F]					
Storage temperature		-20~60°C [-4~140°F]					
Relative humidity		20~90% RH [no condensation]					
Package Contents		1x CV-57G [TX & RX] 2x 5V power supply unit 1x User Manual		1x CV-57C [TX & RX] 1x IR blaster 1x IR receiver 1x 5V power supply unit 1x User Manual		1x CV-57B [TX & RX] 2x 5V power supply unit 1x User Manual	

Front Panel — Transmitting Unit CV-57G[Tx]



HDMI IN: Connects to a HDMI source with a HDMI male-male cable here

MODE:
0 = [Video] – supports up to HDMI 1.3 output. [Audio] – supports up to 7.1ch output
1 = [Video] – supports up to HDMI 1.3 output. [Audio] – locks to stereo audio output
2 = [Video] – locks to HDMI 1.2 output. [Audio] – supports up to 7.1ch output
3 = [Video] – locks to HDMI 1.2 output. [Audio] – locks to stereo audio output
4 = [Video] – DVI display mode. [Audio] – no audio output
5 = [Safe Mode] – uses default EDID[1] with video supported up to 1080p and stereo audio
6 = [Default Mode] – uses default EDID[2] with video supported up to 1080p and 7.1ch audio
7 = [EDID Learning Mode] – learns EDID[3] from the display

Note for EDID (Extended Display Identification Data) learning

1. ***If you cannot get the audio/video output from the connected display from the first time setup. Please follow the instructions below to check if the extender is OK:***

   Step 1 – ***Please set the rotary arrow on TX at "Mode 5" for Safe Mode, and wait for the LED of the RJ-45 connector blinks for a couple seconds.***

   Step 2 – ***Please turn the rotary arrow counterclockwise [↺] from Mode 5 to Mode 3. If you can get audio/video from the display, you can stay tune at this setting for 720p or 1080i and stereo audio. If you need to get 720p/1080i with 7.1ch audio output, please turn the rotary arrow counterclockwise [↺] from Mode 3 to Mode 2. For better audio/video output, please check Note#2. If you still cannot get the audio/video out normally, please go on the next step.***

   Step 3 – ***Please turn the rotary arrow counterclockwise [↺] from Mode 3 to Mode 7. Wait a few seconds until the LED of the RJ-45 connector dims and then lights again.***

   Step 4 – ***Please turn the rotary arrow clockwise [↻] from Mode 7 to Mode 1. You should have normal audio/video output. If not, please contact technical support.***

2. ***For desirable 1080p video output, please follow the instructions below:***

   Step 1 – ***Please set the rotary arrow on TX at "Mode 6" for Default Mode, and wait for the LED of the RJ-45 connector blinks for a couple seconds.***

Step 2 – Please turn the rotary arrow clockwise [↻] from Mode 6 to Mode 1. If you can get audio/video from the display, you can stay tune at this setting for 1080p and stereo audio. If you need to get 1080p with 7.1ch audio output, please turn the rotary arrow counterclockwise [↺] from Mode 1 to Mode 0. If you cannot get the audio/video out normally, please go on the next step.

Step 3 – Please turn the rotary arrow counterclockwise [↺] from Mode 0/1 to Mode 7. Wait a few seconds until the LED of the RJ-45 connector dims and then lights again.

Step 4 – Please turn the rotary arrow clockwise [↻] from Mode 7 to Mode 0/1. You should have your desirable audio/video output. If not, please follow the instruction in Note#1.

3. To learn EDID from the HDMI display, please follow the instruction below:

Step 1 – Please connect the display which you want to read EDID with a HDMI cable to the transmitter's HDMI IN and set the rotary arrow at Mode 7 so the TX can learn the EDID information from the connected display. The LED on the RJ45 connector of TX will dim and light again in a few seconds, which indicates the EDID learning procedure is complete.

Step 2 – Please turn the rotary arrow clockwise [↻] from Mode 7 to Mode 0 or Mode 1 for desirable audio setting and enjoy the experience. DO NOT let the rotary arrow pass by Mode 5 and Mode 6 which will erase the EDID just learned and restore the default EDID.

Rear Panel — Transmitting Unit CV-57G[Tx]

+5V DC: Connect to 5V DC power supply.

HDMI Signal OUT: Plug in a Cat-5/5e/6 cable that needs to be linked to the RJ-45 connector of the receiving unit CV-57G[Rx].

Front Panel — Receiving Unit CV-57G[Rx]

HDMI OUT: Connect to a HDMI display with a HDMI male-male cable here.

Signal Level: Adjust the 8-level equalization control to the received HDMI signals. The HDMI signal level varies from 0 (strongest) to 7 (weakest) for respective transmission length from longest possible range to short distance. Please adjust the signal level from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!

Rear Panel — Receiving Unit CV-57G[Rx]

HDMI Signal IN: Plug in a Cat-5/5e/6 cable that needs to be linked to the RJ-45 connector of the transmitting unit CV-57G[Tx].

+5V DC: Connect to 5V DC power supply.

Hardware Installation

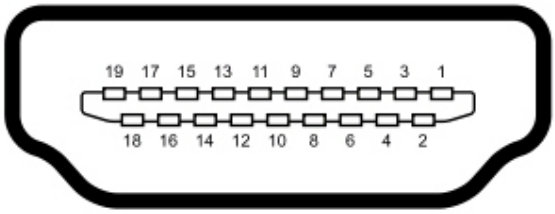
1. Connect a HDMI or DVI source (such as a Blu-ray Disc player) to the transmitting unit CV-57G[Tx].
2. Connect a HDMI or DVI display (such as a LCD TV) to the receiving unit CV-57G[Rx].
3. Connect a Cat-5/5e/6 cable between the transmitting and receiving units.
4. Make sure this Cat-5/5e/6 cable is tightly connected and not loose.
5. Plug in 5V DC power supply unit to the power jack of the receiving unit CV-57G[Rx].
6. Plug in 5V DC power supply unit to the power jack of the transmitting unit CV-57G[Tx].
7. **If you see flickering or blinking image on the display, please adjust the rotary control switch to improve the cable skew. 0 stands for the strongest HDMI signal level for longest possible transmission length while 7 stands for the weakest HDMI signal level for short transmission length. Please adjust the signal level from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!**

EDID Learning

1. Turn on CV-57G[Tx].
2. Turn "**MODE**" on the transmitter unit CV-57G[Tx] counterclockwise [↺] to **7**.
3. Connect the HDMI display to "**HDMI IN**" on the CV-57G[Tx] with a HDMI cable and better not connect to video source. The LED on the RJ-45 connector of CV-57G[Tx] will dim and light again, which indicates the EDID learning procedure is complete.
4. Turn "**MODE**" on the CV-57G[Tx] clockwise **[↻]** from **7** to **0** (for surround sound) or **1** (for stereo). ***The most important thing is don't let the rotary arrow pass through mode 5 and Mode 6 which will erase the EDID just learned and restore to default EDID.***
5. Unplug the HDMI cable from the display and follow the instruction in [Hardware Installation] to set up the CV-57G and enjoy the experience.

Pin Definition

HDMI

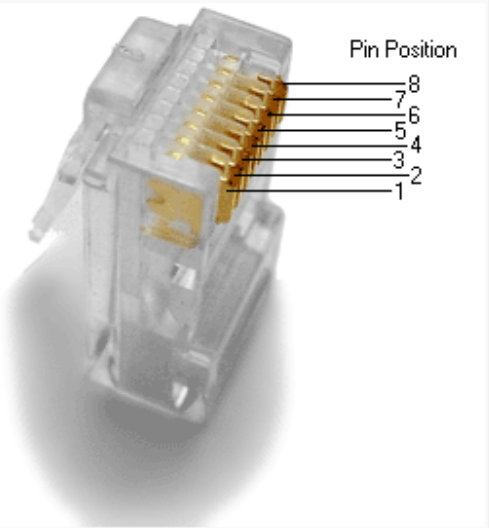


Type A (Receptacle) HDMI

Pin 1	TMDS Data2+	Pin 8	TMDS Data0 Shield	Pin 15	SCL
Pin 2	TMDS Data2 Shield	Pin 9	TMDS Data0–	Pin 16	SDA
Pin 3	TMDS Data2–	Pin 10	TMDS Clock+	Pin 17	DDC/CEC Ground
Pin 4	TMDS Data1+	Pin 11	TMDS Clock Shield	Pin 18	+5 V Power
Pin 5	TMDS Data1 Shield	Pin 12	TMDS Clock–	Pin 19	Hot Plug Detect
Pin 6	TMDS Data1–	Pin 13	CEC		
Pin 7	TMDS Data0+	Pin 14	Reserved (N.C. on device)		

CAT5 [RJ-45]

T568A and T568B Wiring

Pin	T568A Pair	T568B Pair	Wire	T568A Color	T568B Color	Pins on plug face (socket is reversed)
1	3	2	tip	white/green stripe	white/orange stripe	
2	3	2	ring	green solid	orange solid	
3	2	3	tip	white/orange stripe	white/green stripe	
4	1	1	ring	blue solid	blue solid	
5	1	1	tip	white/blue stripe	white/blue stripe	
6	2	3	ring	orange solid	green solid	
7	4	4	tip	white/brown stripe	white/brown stripe	
8	4	4	ring	brown solid	brown solid	

Pair of Cat-5/5e/6 Cable		Definition
	White/orange stripe	TX0–
	Orange solid	TX0+
	White/green stripe	TX1–
	Blue solid	TX2–
	White/blue stripe	TX2+
	Green solid	TX1+
	White/brown stripe	TXC–
	Brown solid	TXC+

Notice

1. When adjusting the signal level on the receiver unit, please dial the rotary control switch from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!
2. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI or HDMI display EDID information.
3. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C.
4. The transmission length is largely affected by the type of Cat-5/5e/6 cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 300m [1,000ft] bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP Cat-5e cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
5. EIA/TIA-568-B termination (T568B) for Cat-5/5e/6 cables is recommended for better performance.
6. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use shielded STP cables to improve EMI problems, which is worsen in long transmission.
7. Because the quality of the CAT5/6 cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of Cat-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
8. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

Performance Guide for HDMI over Category Cable Transmission

Performance rating		Type of category cable		
Wiring	**Shielding**	**CAT5**	**CAT5e**	**CAT6**
Solid	Unshielded (UTP)	★★★	★★★★	★★★★★
	Shielded (STP)	★★★	★★★	★★★★
Stranded	Unshielded (UTP)	★	★★	★★
	Shielded (STP)	★	★	★★
Termination		Please use **EIA/TIA-568-B** termination (**T568B**) at any time		

Limited Warranty

The SELLER warrants the **CV-57G HDMI 1.3 over Single CAT5 Extender** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the **CV-57G** features and specifications is subject to change without further notice.